Auto Body Repair
(CIP: 47.0603)

Occupational Skills

The Student demonstrates the specified level of competency in occupational skills:

0	1	2	3	4
No Exposure	Introduced	Practiced	Entry-level	Competency

0 1 2 3 4

❑❑❑❑❑ **A. Practice Work Place Safety Skills**
(Vermont Standards: 3.3, 7.18)

❑❑❑❑❑ **B. Repair Vehicle Damage**
(Vermont Standards: 1.1, 1.19, 1.22, 2.2, 2.6, 2.12, 3.7, 7.18, 7.19)

❑❑❑❑❑ **C. Remove and Replace Panels (follow safety procedures)**
(Vermont Standards: 7.18)

❑❑❑❑❑ **D. Perform Unicoupe (Unibody) Repair**
(Vermont Standards: 1.21, 3.14, 3.15, 7.17)

❑❑❑❑❑ **E. Repair Frame and Suspension**
(Vermont Standards: 2.2, 7.1, 7.3, 7.7, 7.12, 7.15, 7.16)

❑❑❑❑❑ **F. Perform Welding Processes**
(Vermont Standards: 7.10, 7.11, 7.12, 7.18)

❑❑❑❑❑ **G. Repair Plastic Parts**
(Vermont Standards: 1.21, 2.2, 7.19)

❑❑❑❑❑ **H. Perform Fiberglass Process**
(Vermont Standards: 1.21, 7.11, 7.12)

❑❑❑❑❑ **I. Repair and Replace Heating and Cooling System**
(Vermont Standards: 1.21, 7.11, 7.12)

❑❑❑❑❑ **J. Maintain Electrical System**
(Vermont Standards: 1.2, 1.18, 1.19, 1.22, 2.6, 2.8, 7.6, 7.1, 7.11)

❑❑❑❑❑ **K. Follow Glass Service Procedures**
(Vermont Standards: 2.2)

❑❑❑❑❑ **L. Refinish the Vehicle**
(Vermont Standards: 1.21, 2.2, 5.28, 7.1, 7.12)

❑❑❑❑❑ **M. Recondition Vehicles**
(Vermont Standards: 2.2, 7.12)

❑❑❑❑❑ **N. Manage and Operate a Body Shop**
(Vermont Standards: 1.6, 1.11, 1.19, 1.20, 3.1, 3.3, 7.6, 7.18)

DIRECTIONS

Evaluate the student by checking the appropriate box to indicate the degree of Competency. The rating for each task should reflect **employability readiness** rather than the grades given in class.

Rating Scale:

0 **No exposure**
1 **Introduced**- the student has been exposed through non participatory instruction (e.g. lecture, demonstration, field trip, video).
2 **Practiced**- the student can perform the task with direct supervision.
3 **Entry-Level Competency**- the student can perform the task with limited supervision and/or does not perform the task to standard (a typical entry-level performance expectation).
4 **Competency**- the student consistently performs task to standard with no supervision (on at least two occasions or at instructor's option).

AUTO BODY REPAIR

GENERAL SKILLS

0 1 2 3 4

❑❑❑❑❑ **A. Practice Workplace Safety Skills**

A.001 Define specific safety terms.
A.002 Demonstrate the use of proper clothing, shoes, glasses, ear protection, breathing apparatus, aprons, shields, and other safety equipment.
A.003 Demonstrate basic knowledge of appropriate fire safety practices. - YEAR 2
A.004 Demonstrate basic knowledge of appropriate first aid procedures. - YEAR 2
A.005 Follow proper hazardous chemical/material control procedures, being aware of the "Right to Know" regulations including MSDS knowledge.
A.006 Use tools and equipment listed in Appendix A safely (List to be developed by each area vocational center).
A.007 Identify unsafe conditions and report them to the supervisor.
A.008 Follow proper respiratory safety practices.

❑❑❑❑❑ **B. Repair Vehicle Damage**

B.001 Determine direction of force or impact.
B.002 Determine extent of direct or indirect damage.
B.003 Operate hydraulic hoist.
B.004 Operate hydraulic pulling/pushing equipment (ex. portopower, etc.). – YEAR 2
B.005 Rough out damaged panels.
B.006 Straighten sheet metal.
B.007 Operate body picks. – YEAR 2
B.008 Manipulate body hammers.
B.009 Manipulate body dollies.
B.010 Make sheet metal patches and repair damaged areas.
B.011 Shrink metal. – Demonstration only.
B.012 Operate body file.
B.013 Operate rivet gun.
B.014 Operate pneumatic tools (ex. air hammer, etc.).
B.015 Operate electric and/or pneumatic shears.
B.016 Operate disc grinder.
B.017 Repair with plastic body filler.
B.018 Operate flat and half-round "cheese grate" files.
B.019 Operate pneumatic file board.
B.020 Operate hand file board.
B.021 Operate unispotter. (Recommended to be a core item as soon as possible.)

❑❑❑❑❑ C. Remove and Replace Panels (Follow Safety Procedures)

C.001 Prepare for panel removal.
C.002 Remove bolted or screwed-on body panels (doors, fenders, etc.), tagging items for reassembly.
C.003 Replace bolted or screwed-on panels.
C.004 Remove and replace bolted-on parts.
C.005 Remove permanently attached panels and prepare for replacement.
C.006 Replace welded-on panels (clip, rails, quarters, etc.). – YEAR 2
C.007 Remove and replace interior trim.
C.008 Adjust trim and panels.

❑❑❑❑❑ D. Perform Unicoupe (Unibody) Repair

D.001 Demonstrate knowledge of unibody repair principles.
D.002 Determine structural damage, using appropriate diagnostic equipment. (through OJT) – YEAR 2
D.003 Take a field trip to a unibody repair site for exposure to current industrial repair standards.
D.004 Perform unibody repair.
D.005 Check completed repair with appropriate diagnostic equipment. – YEAR 2

❑❑❑❑❑ E. Repair Frame and Suspension Damage

E.001 Diagnose frame damage, using the following: toe-in gauge, tacking gauge, tram gauge, datum gauge, self-centering gauge, frame manual, etc. – YEAR 2
E.002 Remove steering and suspension system.
E.003 Repair and align frame. – YEAR 2
E.004 Take a field trip to observe front end/rear end alignment. – YEAR 2

❑❑❑❑❑ F. Perform Welding Processes

F.001 Determine proper welding procedure to be sued on a specific job (be aware of unseen hazards: gas lines, brake lines, etc.).
F.002 Set up and test Oxyfuel welding equipment.
F.003 Heat frozen (rusty) nuts or bolts with oxyfuel torches to remove parts.
F.004 Cut rusted nuts and bolts using oxyfuel torches.
F.005 Perform M.I.G. welding (operate machine, weld a bead, weld a lap joint, weld a spot joint).
F.006 Electric spot weld sheet metal (Equipment as available at AVC).
F.007 Take a field trip to observe proper plasma cutting procedure. - YEAR 2

❑❑❑❑❑ G. Repair Plastic Parts

G.001 Repair and replace body panel.
G.002 Repair and replace bumper cover.

❑❑❑❑❑ H. Perform Fiberglass Process

H.001 Mix and prepare resin, following prescribed safety procedures.
H.002 Repair cracked fiberglass.
H.003 Apply matting.
H.004 Remove and replace fiberglass sections.
H.005 Align fiberglass sections.
H.006 Fabricate a fiberglass panel.

❑❑❑❑❑ I. Repair and Replace Heating and Cooling Systems

I.001 Analyze cooling system components.
I.002 Perform cooling system maintenance.
I.003 Repair cooling system.
I.004 Repair or replace air conditioning system components. - YEAR 2
I.005 Repair or replace heating system components.

❑❑❑❑❑ J. Maintain Electrical System

J.001 Service and/or replace battery.
J.002 Remove and replace tail lamp assembly.

J.003 Remove and replace package lamp assembly.
J.004 Remove and replace side lamp assembly.
J.005 Repair wiring circuit.
J.006 Remove and replace a sealed-beam headlamp, a tail lamp bulb, and/or a signal lamp bulb.
J.007 Align headlamps.
J.008 Repair and replace charging system.
J.009 Repair or replace accessory system.

❑❑❑❑❑ **K. Follow Glass Service Procedures**

K.001 Identify types of automotive glass.
K.002 Remove and replace door vent window. – YEAR 2
K.003 Remove and replace door glass. – YEAR 2
K.004 Remove and replace quarter glass. – YEAR 2
K.005 Remove and replace rear window. – YEAR 2
K.006 Observe removal and replacement of windshields. – YEAR 2

❑❑❑❑❑ **L. Refinish the Vehicle**

L.001 Wash and de-wax vehicle, applying preparation solution.
L.002 Determine type of original finish and type of finish to be used.
L.003 Inspect vehicle for surface defects and damage.
L.004 Remove and/or mask decorative trim and hardware.
L.005 Operate DA sander and polisher to supervisor's satisfaction.
L.006 Apply paint remover, using proper procedures.
L.007 Repair surface defects/jeatheredge broken surfaces.
L.008 Treat bare metal chemically.
L.009 Mix and apply primer/surfacer and putty, to industry standards.
L.010 Prepare vehicle for color coats, choosing color according to code.
L.011 Apply topcoats, using proper spray gun procedures.
L.012 Add paint catalyst using proper mixing procedures.
L.013 Maintain spray guns and equipment.
L.014 Wash, compound, wax, and polish vehicle.
L.015 Reinstall exterior trim and hardware.
L.016 Clean up and prepare vehicle.
L.017 Spot blend paint on a panel.
L.018 Complete base coat and clear coat refinishing process (fender, door, panels…).
L.019 Determine pinstripe and woodgrain needs.
L.020 Apply detailing stripes.

❑❑❑❑❑ **M. Recondition Vehicles**

M.001 De-grease engine compartment.
M.002 Clean vehicle exterior.
M.003 Wash, buff and polish vehicle.
M.004 Clean and condition convertible and vinyl tops. – YEAR 2
M.005 Brush touch-up paint.
M.006 Clean vehicle interior.

❑❑❑❑❑ **N. Manage and Operate a Body Shop**

N.001 Estimate repairs. – YEAR 2
N.002 Take inventory and establish cost of materials. – YEAR 2
N.003 Maintain shop and equipment.
N.004 Layout and arrange shop.
N.005 Maintain shop safety practices.

Workplace Skills

Scoring Rubric

The student demonstrates the specified level of competency in occupational skills:

0	1	2	3	4
No Exposure	Introduced	Practiced	Entry-level	Competency

0 1 2 3 4

❑❑❑❑❑ **A. Students Will be Able to Collect Information, Explore, and Make Personal Decisions about Careers**
(Vermont Framework: 3.15aaa)

❑❑❑❑❑ **B. Students Will be Able to Obtain a Job**
(Vermont Framework: 1.10a, b, c, d, cc)

❑❑❑❑❑ **C. Students Will be Able to Experience Success Within Employment**
(Vermont Framework: 1.15, 2.1, 2.2)

❑❑❑❑❑ **D. Students Will be Able to Demonstrate Career Advancement Skills**
(Vermont Framework: 3.5, 3.10, 3.11)

DIRECTIONS

Evaluate the student by checking the appropriate box to indicate the degree of Competency. The rating for each task should reflect **employability readiness** rather than the grades given in class.

Rating Scale:

5 No exposure

6 Introduced- the student has been exposed through non-participatory instruction (e.g. lecture, demonstration, field trip, video).

7 Practiced- the student can perform the task with direct supervision.

8 Entry-Level Competency- the student can perform the task with limited supervision and/or does not perform the task to standard (a typical entry-level performance expectation).

9 Competency- the student consistently performs task to standard with no supervision (on at least two occasions or at instructor's option).

Work Place Skills

0 1 2 3 4

❑❑❑❑❑ **A. Students will be able to collect information, explore, and make personal decisions about careers.**

A.001 Identify personal work-related interest areas.
A.002 Identify personal work-related values.
A.003 Identify three personal strengths and three vocational or educational skills.
A.004 Review the qualifications required for a specific occupation and identify how to meet those qualifications he/she does not have.

❑❑❑❑❑ **B. Students will be able to obtain a job.**

B.001 Demonstrate familiarity with the following sources of job information: a) newspaper ads, b) Vermont Job Service, c) school placement services, d) employment agencies, e) personal contacts.
B.002 Identify three local employers in a chosen occupational field and list their addresses and phone numbers as well as their starting wage and hiring information.
B.003 Prepare a data sheet/resume which includes education, interest, work experience, and three personal references with addresses and phone numbers.
B.004 Fill out correctly a sample job application.
B.005 Demonstrate the ability to make a job interview appointment by phone and participate in a real or mock job interview with a follow-up evaluation.

❑❑❑❑❑ **C. Students will be able to experience success within employment.**

C.001 Demonstrate an understanding of the following policies for employees of a specific local employer: a) wage scale, b) fringe benefits, c) grievance.
C.002 Demonstrate an understanding of employer/employee rights and protection provided by state and federal law.
C.003 Demonstrate an understanding of the role of labor unions in the economic system.
C.004 Demonstrate an understanding of federal, state, income tax, and social security deductions from the total wages of a sample pay period.
C.005 Demonstrate an understanding of the following job transition concepts: a) advancement, b) firing, c) voluntary termination, d) transfer, e) career change, f) honesty.
C.006 Demonstrate safe worksite procedures by: a) adhering to safety rules, b) taking care of tools and equipment, c) using tools and equipment appropriately, and d) keeping work area clean.

❑❑❑❑❑ **D. Students will be able to demonstrate career advancement skills**

D.001 Maintain an acceptable attendance record.

D.002 Work well under supervision by: a) following instructions, b) completing tasks on time, c) meeting employers work standards, d) accepting constructive criticism.
D.003 Work cooperatively with fellow workers and maintain a positive attitude.
D.004 Demonstrate appropriate use of language, worksite appearance and dress, and personal health and hygiene habits.
D.005 Show initiative in performing work without prompting and accepting new/additional assignments willingly.
D.006 Demonstrate problem-solving abilities.

Auto Body Repair

Vermont's Framework of Standards

A. Practice Work Place Safety Skills

3.3 Students demonstrate respect for themselves and others.

7.18 Students understand that people control the outputs and impacts of our expanding technological activities in the areas of communication, construction, manufacturing, power and transportation, energy sources, health technology, and biotechnology.

B. Repair Vehicle Damage

1.1 Students use a variety of strategies to help them read.

1.19 Students use organizational systems to obtain information from various sources (including libraries and the Internet).

1.22 Students employ a variety of techniques to use simulations and to develop models.

2.2 Students use reasoning strategies, knowledge, and common sense to solve complex problems related to all fields of knowledge.

2.6 Students apply prior knowledge, curiosity, imagination, and creativity to solve problems.

2.12 Students modify or change their original ideas and/or the ideas of others to generate innovative solutions.

3.7 Students make informed decisions.

7.18 Students understand that people control the outputs and impacts of our expanding technological activities in the areas of communication, construction, manufacturing, power and transportation, energy sources, health technology, and biotechnology.

7.19 Students use technological/engineering processes to design solutions to problems.

C. Remove and Replace Panels (follow safety procedures)

7.18 Students understand that people control the outputs and impacts of our expanding technological activities in the areas of communication, construction, manufacturing, power and transportation, energy sources, health technology, and biotechnology.

D. Perform Unicoupe (Unibody) Repair

1.21 Students select appropriate technologies and applications to solve problems and to communicate with an audience.

3.14 Students demonstrate dependability, productivity, and initiative.

3.15 Students know about various careers.

7.17 Students apply knowledge and understanding of technological systems to respond to a variety of issues.

E. Repair Frame and Suspension

2.2 Students use reasoning strategies, knowledge, and common sense to solve complex problems related to all fields of knowledge.

7.1 Students use scientific methods to describe, investigate, and explain phenomena.

7.3 Students understand the nature of mathematical, scientific, and technological theory.

7.7 Students use geometric and measurement concepts.

7.12 Students understand forces and motion, the properties and composition of matter, and energy sources and transformations.

7.15 Students demonstrate understanding of the earth and its environment, the solar system, and the universe in terms of the systems that characterize them, the forces that affect and shape them over time, and the theories that currently explain their evolution.

7.16 Students understand how natural resources are extracted, distributed, processed, and disposed of.

F. Perform Welding Processes

7.10 Students use concrete, formal, and informal strategies to solve mathematical problems, apply the process of mathematical modeling, and extend and generalize mathematical concepts. Students apply mathematics as they solve scientific and technological problems or work with technological systems.

7.11 Students analyze and understand living and non-living systems (e.g., biological, chemical, electrical, mechanical, optical) as collections of interrelated parts and interconnected systems.

7.12 Students understand forces and motion, the properties and composition of matter, and energy sources and transformations.

7.18 Students understand that people control the outputs and impacts of our expanding technological activities in the areas of communication, construction, manufacturing, power and transportation, energy sources, health technology, and biotechnology.

G. Repair Plastic Parts

1.21 Students select appropriate technologies and applications to solve problems and to communicate with an audience.

2.2 Students use reasoning strategies, knowledge, and common sense to solve complex problems related to all fields of knowledge.

7.19 Students use technological/engineering processes to design solutions to problems.

H. Perform Fiberglass Process

1.21 Students select appropriate technologies and applications to solve problems and to communicate with an audience.

7.11 Students analyze and understand living and non-living systems (e.g., biological, chemical, electrical, mechanical, optical0 as collections of interrelated parts and interconnected systems.

7.12 Students understand forces and motion, the properties and composition of matter, and energy sources and transformations.

I. Repair and Replace Heating and Cooling System

1.21 Students select appropriate technologies and applications to solve problems and to communicate with an audience.

7.11 Students analyze and understand living and non-living systems (e.g., biological, chemical, electrical, mechanical, optical) as collections of interrelated parts and interconnected systems.

7.12 Students understand forces and motion, the properties and composition of matter, and energy sources and transformations.

J. Maintain Electrical System

1.2 Students read grade-appropriate material, with 90%+ accuracy, in a way that makes meaning clear.

1.18 Students use computers, telecommunications, and other tools of technology to research, to gather information and ideas, and to represent information and ideas accurately and appropriately.

1.19 Students use organizational systems to obtain information from various sources (including libraries and the Internet).

1.22 Students employ a variety of techniques to use simulations and to develop models.

2.6 Students apply prior knowledge, curiosity, imagination, and creativity to solve problems.

2.8 Students demonstrate a willingness to take risks in order to learn.

7.1 Students use scientific methods to describe, investigate, and explain phenomena.

7.6 Students understand arithmetic in computation, and they select and use, in appropriate situations, mental arithmetic, pencil and paper, calculator, and computer.

7.11 Students analyze and understand living and non-living systems(e.g., biological, chemical, mechanical, optical) as collections of interrelated parts and interconnected systems.

K. Follow Glass Service Procedures

2.2 Students use reasoning strategies, knowledge, and common sense to solve complex problems related to all fields of knowledge.

L. Refinish the Vehicle

1.21 Students select appropriate technologies and applications to solve problems and to communicate with an audience.

2.2 Students use reasoning strategies, knowledge, and common sense to solve complex problems related to all fields of knowledge.

5.28 Students use art forms to communicate, showing the ability to define and solve artistic problems with insight, reason, and technical proficiency.

7.1 Students use scientific methods to describe, investigate, and explain phenomena.

7.12 Students understand forces and motion, the properties and composition of matter, and energy sources and transformations.

M. Recondition Vehicles

2.2 Students use reasoning strategies, knowledge, and common sense to solve complex problems related to all fields of knowledge.

7.12 Students understand forces and motion, the properties and composition of matter, and energy sources and transformations.

N. Manage and Operate a Body Shop

1.6 Students' independent writing demonstrates command of appropriate English conventions, including grammar, usage, and mechanics.

1.11 In persuasive writing, students judge, propose, and persuade.

1.19 Students use organizational systems to obtain information from various sources (including libraries and the Internet).

1.20 Students use graphs, charts, and other visual presentations to communicate data accurately and appropriately.

3.1 Students assess their own learning by developing rigorous criteria for themselves, and use these to set goals and produce consistently high-quality work.

3.3 Students demonstrate respect for themselves and others.

7.6 Students understand arithmetic in computation, and they select and use, in appropriate situations, mental arithmetic, pencil and paper, calculator, and computer.

7.18 Students understand that people control the outputs and impacts of our expanding technological activities in the areas of communication, construction, manufacturing, power and transportation, energy sources, health technology, and biotechnology.